भारतीय मानक

Indian Standard

IS 4822 : 2022

पीतल और कांस्य खाना पकाने के बर्तन — विशिष्टि

(दूसरा पुनरीक्षण)

Brass and Bronze Cooking Utensils — Specification

(Second Revision)

ICS 97.040.60

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December 2022 **Price Group 6**

Utensils, Cutlery Domestic Hardware Sectional Committee, MED 33

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Utensils, Cutlery Domestic Hardware Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1968 and subsequently revised in 1981. In this revision, the following major changes have been incorporated:

a) Material of lid has been prescribed;
b) Handle tests have been added;
c) Performance tests for glass lid have been prescribed;
d) Nominal capacity requirement has been added; and
e) Marking clause has been modified.

In the first revision of this standard, material designation conforming to latest standard were covered suitably.

The relevant SI units and corresponding conversion factors are given below for guidance:

$$
\begin{aligned}
1\ \text{kgf/cm}^2 &= 98.066\ 5\ \text{kPa (kilopascal)} = 10\ \text{m of water column (WC)} \\
&= 0.098\ 066\ 5\ \text{MPa (megapascal)} \\
&= 0.980\ 665\ \text{bar} \\
1\ \text{Pa} &= 1\ \text{N/m}^2
\end{aligned}
$$

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of the test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

BRASS AND BRONZE COOKING UTENSILS — SPECIFICATION

(Second Revision)

1 SCOPE

The standard covers the requirements for brass and bronze cooking utensils.

NOTE — Depending upon the thickness, the utensils have been classified as heavy duty and light duty.

2 REFERENCES

The Indian Standard listed in below contain provisions which, through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

IS No.	*Title*
IS 291 : 1989	Naval brass rods and sections for machining purposes — Specification (*third revision*)
IS 305 : 1981	Specification for aluminium bronze ingots and castings (*second revision*)
IS 422 : 1981	Specification for brass sheet and strip for the manufacture of utensils(*second revision*)
IS 5522 : 2014	Stainless steel sheets and strips for utensils — Specification (*third revision*)
IS 7608 : 1987	Specification for phosphor bronze wire for general engineering purposes(*first revision*)
IS 9040 : 1978	Methods for sampling of utensils
IS13395 : 2021	Performance of handles and handle assemblies attached to cookware — Specification (*first revision*)
IS 15997 : 2012	Low nickel austenitic stainless steel sheet and strip for utensils and kitchen appliances —Specification

3 MATERIAL

3.1 The brass used for manufacture of the utensils shall conform to IS 422. The bronze used for manufacture of the utensils shall conform to IS 305.

3.2 Handles shall confirm to requirements of IS 13395.

3.3 If the utensil is provided with brass or bronze lid, the material of lid shall be as per IS 422 or IS 305 respectively. The minimum thickness of the lid shall be 0.4 mm.

3.4 If the utensil is provided with stainless steel lid, the material of lid shall be as per IS 5522 or IS 15997. The minimum thickness of the lid shall be 0.4 mm.

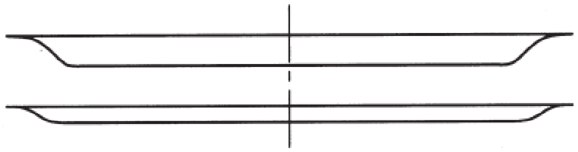
3.5 If the utensil is provided with tempered glass lid, the lid shall conform to the performance requirements given in **6.2**. The minimum thickness of glass shall be 3.5 mm. If the stainless steel rim is provided on the glass lid, the material of rim shall be as per IS 5522 or IS 15997. The minimum thickness of the rim shall be 0.25 mm.

3.6 Incase a gasket is used, it should be made of food grade silicone (supplier certificate is acceptable).

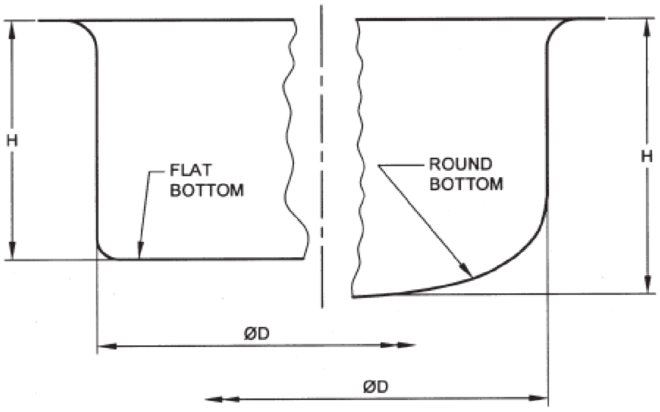
3.7 The wires or strips used for handles and rivets shall conform to IS 7608, IS 422or IS 291 respectively

4 DIMENSIONS

The shapes and dimensions for various types of utensils shall be as per the agreement between the purchaser and the manufacturer. However, some of the typical shapes of different types of utensils are given in Fig. 1 to Fig. 6 for guidance.



DEGCHI COVER

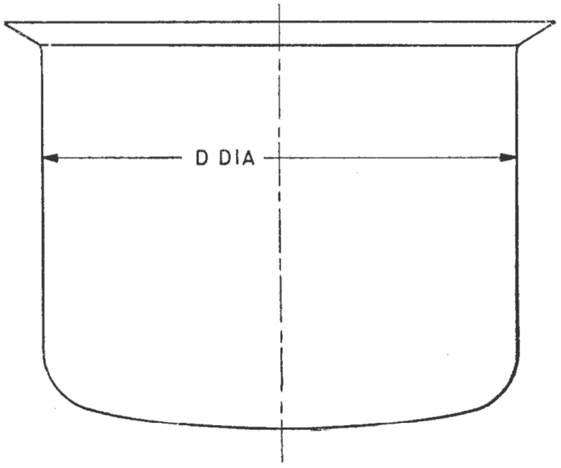


DEGCHI

Inner Diameter *D*	*Minimum Thickness of Sheet*		*Maximum Permissible Reduction in Thickness*	
	Heavy	*Light*	*Heavy*	*Light*
up to 200	1.25	0.90	0.20	0.10
Above 200 upto 230	1.60	1.25	0.20	0.10
Above 230	2.5	1.5	0.20	0.10

All dimensions in millimetres.

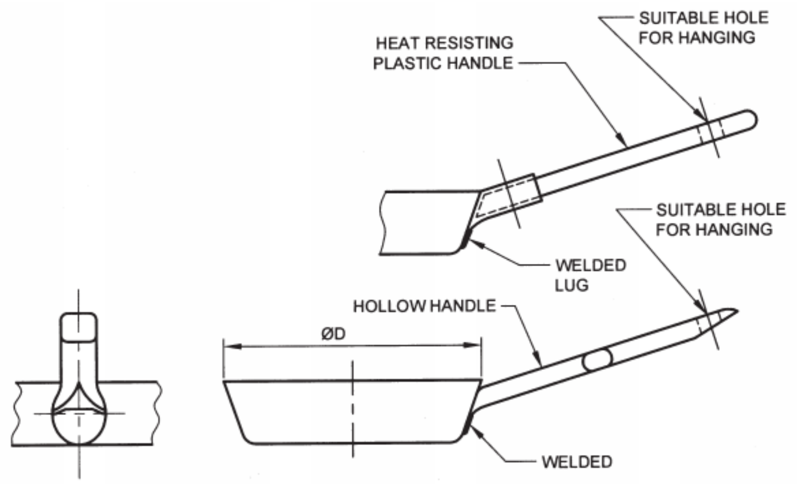
FIG. 1 DEGCHIAND COVER



Inner Diameter *D*	*Minimum Thickness of Sheet*		*Maximum Permissible Reduction in Thickness*	
	Heavy	*Light*	*Heavy*	*Light*
upto 170	1.25	0.90	0.20	0.10
Above 170	2.5	1.5	0.20	0.10

All dimensions in millimetres.

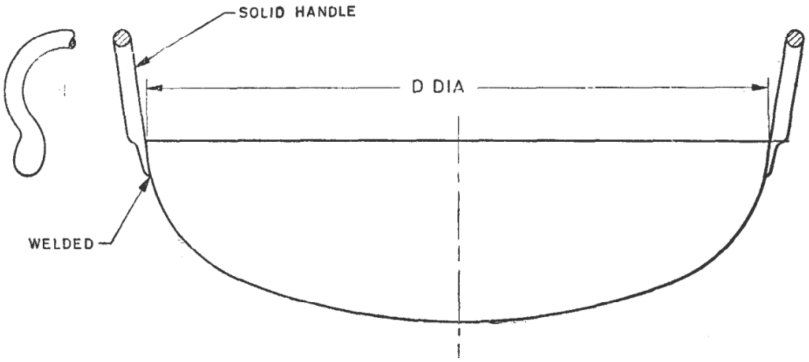
FIG. 2 DEEP DEGCHI


SUITABLE HOLE FOR HANGING
HEAT RESISTING PLASTIC HANDLE
SUITABLE HOLE FOR HANGING
WELDED LUG
HOLLOW HANDLE
ØD
WELDED

Inner Diameter *D*	*Minimum Thickness of Sheet*		*Maximum Permissible Reduction in Thickness*	
	Heavy	*Light*	*Heavy*	*Light*
Upto 200	1.60	1.25	0.20	0.10
Above 200	2.5	1.5	0.20	0.10

All dimensions in millimetres.

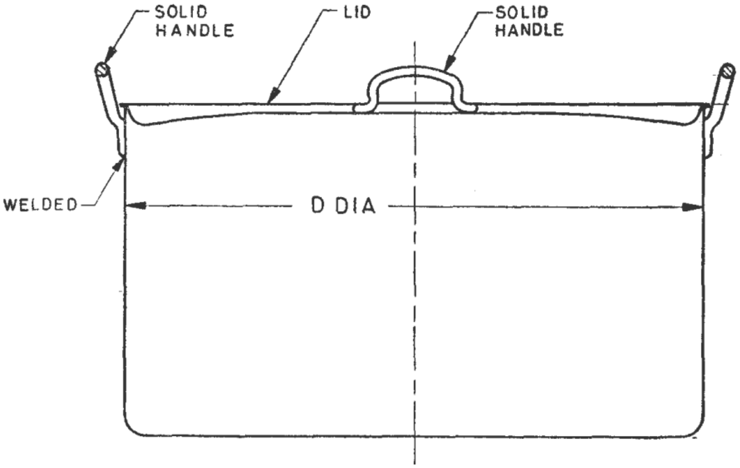
FIG. 3 FRYING PAN



Inner Diameter *D*	Minimum Thickness of Sheet		Maximum Permissible Reduction in Thickness	
	Heavy	Light	Heavy	Light
Upto 265	1.60	1.25	0.20	0.10
Above 265	2.5	1.5	0.20	0.10

All dimensions in millimetres.

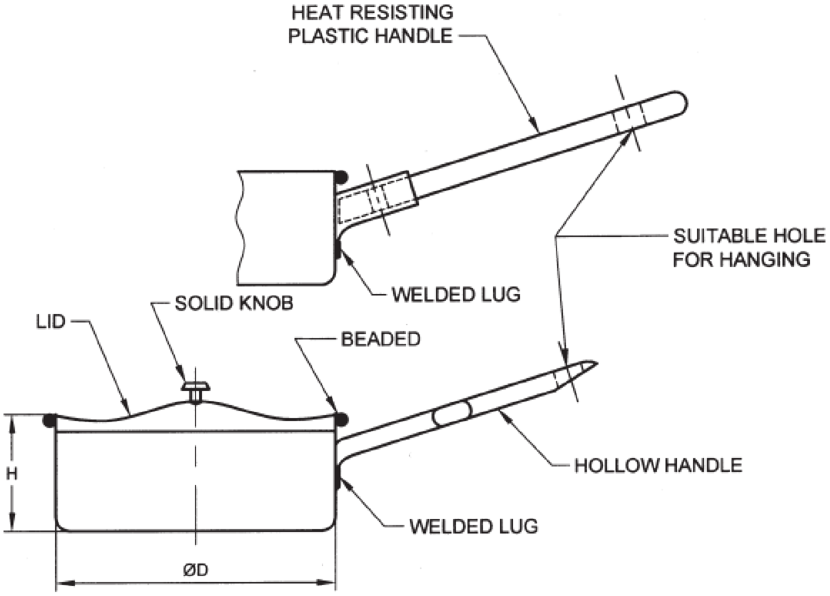
FIG. 4 FRYING BOWL (KADHAI)



Inner Diameter D	*Minimum Thickness of Sheet*		*Maximum Permissible Reduction in Thickness*	
	Heavy	*Light*	*Heavy*	*Light*
Upto 250	1.00	1.25	0.15	0.20
Above 250	2.5	1.5	0.20	0.10

All dimensions in millimetres.

FIG. 5 STEW-PANS



Inner Diameter D	*Thickness of Sheet*		*Maximum Permissible Reduction in Thickness*	
	Heavy	*Light*	*Heavy*	*Light*
Upto 150	1.25	0.90	0.20	0.10
Above 150	2.5	1.5	0.20	0.10

All dimensions in millimetres.

FIG. 6 SAUCEPAN

5 WORKMANSHIP AND FINISH

5.1 The cooking utensils shall have no sharp or open edges and shall be finished bright all over. They may also be tinned on the inside, or plated, if required by the purchaser. The construction shall be such that it is possible to clean the utensils thoroughly and all surfaces for cleaning are accessible to hand or brush.

5.2 The utensils shall be clean, reasonably free from distortion, dents, wrinkles, wavy surface, burrs, scratches, pitting and deep tool marks and other surface defects.

5.3 The handles shall be attached to utensils by welding. They may also be brass riveted, if desired, and the rivet heads shall be well-formed. The handles shall be so shaped and positioned as to provide a comfortable grip.

5.4 If brazing or welding is done the gas if used should be insert and rod material grade should be better than the material used for cookware.

6 TEST REQUIREMENT

6.1 Handles

The handles of the cookware shall comply to the following tests as given in IS 13395:

a) Resistance to burning,
b) Heat resistance,
c) Torque strength,
d) Bending strength,
e) Fatigue resistance, and
f) Thermal insulation test.

NOTES

1 The handle tests should be done at least once a year.

2 One from smallest and one from the largest is sufficient for complying with handle testing requirements.

3 There shall be no leakage through any fixing system of the sample utensils which has undergone tests given at **6.1**.

4 All the materials shall be finished smooth and free from burrs, splinters or sharp edges.

5 The handles shall be positioned above the Centre of gravity of the utensil when filled to its gross capacity. The mass and position of the handle shall be such that the utensil is stable when placed empty with or without lid on a flat surface.

6 Threaded fixing shall incorporate a locking washer or similar device or suitable thread locking or sealing adhesive to hold them secure.

6.2 Test(s) on Tempered Glass Lid

6.2.1 *Fragmentation Test*

6.2.1.1 One lid from each lot having the same thickness is to be tested for this purpose. The sample lid shall be supported on a level surface (vitrified tile or smooth concrete surface). Paste a 50 mm x 50 mm transparent tape inside the glass lid, where the glass would be impacted. The glass lid shall be broken by means of a center punch having radius of curvature 0.20 mm ± 0.05 mm at its tip by giving one severe blow to cause fracture. The point can be center point between the outer edge and the center (away from a hole, if provided).

6.2.1.2 The particle count determination shall be completed within 3 min of the fracture of that glass. No magnifying lens or other aid to vision need be used when making the particle count. The broken particle in a square of side 50 mm shall be counted. There shall be not less than 60 particles in a square of side 50 mm (50 mm x 50 mm). Biggest grain size shall not be more than 4.2 mm.

6.2.2 *Ball Drop Test*

6.2.2.1 One lid from each lot having the same thickness is to be tested for this purpose. The specimen shall be supported on a level surface (vitrified tile or smooth concrete surface). Mark three points 120 degree apart, the point can be center point between the outer edge and the center, (away from a hole, if provided).

6.2.2.2 The smooth surface steel ball of 227 grams is placed at a height of 1 000 mm from the surface (can be inside a plastic tube with a sliding stopper). Allow the ball to free fall on the three points. No crack shall be seen by the naked eye under normal light.

6.2.3 *Thermal Shock Test*

6.2.3.1 This test is applicable for glass lids used for cooking utensils, for others this test is optional.

6.2.3.2 One lid from each lot having the same thickness is to be tested for this purpose. Place the glass in an air circulating oven at 120 °C ± 5 °C. Soak for the cited temperature for 30 min. Remove the glass, pour one liter of water at ambient temperature on the lid. The lid shall not shatter.

6.2.4 *Free Fall Test*

6.2.4.1 Drop the lid with rim facing down, from a height of 900 mm on a vitrified tile surface or a level smooth concrete surface. The glass shall not break/crack.

6.2.8.2 Drop the lid without rim facing down, from a height of 900 mm on a vitrified tile surface or a level concrete surface. The glass shall not break/crack.

6.3 Nominal Capacity Test

6.3.1 The nominal capacity of utensil shall be expressed only in complete or 100 ml units. No negative tolerances shall be allowed on the nominal capacity.

NOTE — If the capacity of a utensil is not in complete or half-litre unit, its nominal capacity shall be marked as the nearest lower complete or 100 ml units. For example, in the case of a utensil having a capacity of 3.95 litre, the nominal capacity to be marked shall be 3.9 litre.

6.3.2 In case the marking or labeling is in terms of diameter, the internal diameter of utensil shall be marked (except for tawa, where the diameter is outer diameter). The dimensions shall be exclusive of the handles. The diameter shall be expressed only in complete or 1.0 cm units. No negative tolerances shall be allowed on the diameter.

NOTE — If the diameter is 39.2 cm, its diameter shall be marked as the nearest lower complete of 1.0 cm units, the diameter to be marked 39 cm.

7 MARKING

7.1 Each utensil shall have the following details:

a) Thickness and classification of utensil;
b) Capacity in litre or size in cm of utensil;
c) Material of utensil;
d) Material grade;
e) Manufacturer name or initials or trade-mark; and
f) Batch number.

NOTE — These details could be provided by means of stamping or engraving on each utensil or printing the packaging material or sticker.

7.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

8 PACKING

Each utensil shall be suitable packaged to avoid any damage during transit. The packaging shall be eco-friendly.

9 SAMPLING

The sampling of brass cooking utensils shall be done in accordance with IS 9040.

10 INSTRUCTIONS FOR USE

The manufacturer shall provide full instructions for use and cleaning including food items not to be cooked in the utensil (for example, lemon).

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Utensils, Cutlery Domestic Hardware Sectional Committee, MED 33

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D.P Garg and Company Private Limited, Noida	SHRI SANDIP GARG
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Jindal Stainless Limited, Hisar	SHRI BISWABASU ROY CHOWDHURY SHRIMATI NISHA GOEL (*Alternate*)
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This Indian Standard has been developed from Doc No.:MED 33 (19801) .

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi